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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,940	03/18/2004	Masayuki Masuyama	2004_0412A	5153

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EXAMINER	
HANNETT, JAMES M	

ART UNIT	PAPER NUMBER
2622	

MAIL DATE	DELIVERY MODE
08/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/802,940	MASUYAMA ET AL.	
	Examiner	Art Unit	
	James M. Hannett	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3/18/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-20* is/are allowed.

6)☒ Claim(s) *21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/15/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 6/15/2004 has been considered by the examiner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1: Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 2003/0137594 Koizumi et al in view of USPN 5,973,311 Sauer et al in view of USPN 6,529,237 Tsay et al.

2: As for Claim 21, Koizumi et al teaches on Paragraphs [0041-0043] driving method for a solid-state image sensing apparatus, wherein the solid-state image sensing apparatus includes an image sensing region (pixels) in which a plurality of unit cells (Fig 3A) is laid out on a semiconductor substrate two-dimensionally (Fig 2), each unit cell composing a photoelectric conversion unit (5) which converts a light signal into signal charge and an amplification unit (3) which amplifies output of the photoelectric conversion unit (5) and outputs an amplified signal; a plurality of vertical signal lines (503) which transmit the amplified signals of the unit cells in a direction of a column Paragraph [0072]. However, Koizumi et al does not teach that the image sensor has multiple read out modes in which a low resolution image and a high resolution image can be read out by summing the pixel values in different rows.

Sauer et al teaches on Column 7, Lines 8-38 and Column 8, Lines 37-46 the use of enabling an image sensor to sum the pixel values in different rows in order to provide different resolution outputs from the image sensor. Sauer et al also teaches that the system can have a capacitive buffer system to allow the charges to be stored prior to summing. Sauer et al teaches that this system is advantageous because it allows the image sensor to output different resolution depending of the require of the output system.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the system of Koizumi et al to selectively output high resolution or low resolution images by summing rows of image data as taught by Sauer at al in order to enable the system of Koizumi et al to output image data at different resolutions.

Koizumi et al in view of Sauer et al teaches an image sensor that can output image data in different resolutions by summing rows of image data. However, Koizumi et al in view of Sauer et al is silent as to the specifics of the output circuitry. Tsay et al teaches on Column 6, Lines 41-63 and depicts in Figure 5 the use of a CDS circuit to be constructed on the output line of an image sensor and teaches that this circuit is advantageous to use on the output of an image sensor because it reduces noise and therefore, improves image quality Furthermore, Tsay et al teaches on Column 6, Lines 41-63 and depicts in Figure 5 a plurality of accumulation capacitors (130) which are connected to a vertical signal line (Vr,Vs) for each column and accumulate signals. Furthermore, these signals will correspond to the signals output from the amplifiers (3) in Koizumi et al in view of Sauer et al. Tsay et al teaches on Column 6, Lines 41-63 after one accumulation capacitor is selected independently for each row to be summed from the plurality of accumulation capacitors (130) and a signal corresponding to the amplified signal for each row

is accumulated, all of accumulation capacitors are selected, each of said accumulation capacitors accumulating the signal corresponding to the amplified signal and when the sum is not performed (no mixing), two or more accumulation capacitors which accumulate a signal corresponding to the amplified signal for each row are selected in parallel from the plurality of accumulation capacitors..

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the CDS circuit of Tsay et al on the output line of Koizumi et al in view of Sauer et al in order to reduce noise and improve image quality.

Allowable Subject Matter

3: Claims 1-20 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The prior art teaches the use of image sensors having an image sensing part, a plurality of vertical signal lines, a horizontal detection unit and accumulation capacitors. Furthermore, the prior art teaches the use of image sensors having a vertical and horizontal signal lines. However, the prior art does not teach the specifics of the accumulation capacitor selection unit wherein the sum of the amplified signals of the unit cells in a plurality of rows is performed and selects a second capacitor when the sum is not performed wherein the capacitance of the first accumulation capacitor is smaller than the capacitance of the second accumulation capacitor. Wherein the capacitance of the second capacitor is a value having a capacitance required to read out the signal accumulated in the second accumulation capacitor. Therefore, the claims area allowed over the prior art.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2007/0115379 Endo et al teaches the use of an image sensor readout circuitry;

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Hannett whose telephone number is 571-272-7309. The examiner can normally be reached on 8:00 am to 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye can be reached on 571-272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James M. Hannett
Examiner
Art Unit 2622

JMH
August 22, 2007